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95.06.09 95DE-1020660 (95/12/1) (C) 1993 (4) CIPK 19/2/19/30,  
19/2/19/30

Polymersizable chiral cpds., used as dopants in liq. crystal compns., -  
contg. condensable reactive gps., e.g. isocyanate, attached to a  
multivalent chiral gp., e.g. di(hydro)sorbitol, via spacer and  
mesogenic gps. (Ger)

C97-007478 R BE CH DE FR GB IT LI NL

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Polymersizable chiral cpds. of formula (I) are new:

 $Z-Y-A-Y^1-M-Y^2-X$  (I)

in which A = a spacer, M = mesogenic gp., Y-Y<sup>1</sup> = direct bond, O, S,  
COO, CO, COCO, CONR or NRCO, R = H or 1-4C alkyl, X = n-  
valent chiral gp., n = 2 or at least one Z is a residue with a NCO,  
NCS, CNO, thioam, aziridine, COOH, OH or amino gp., and the  
others are are H or unreactive gps.

## USE

In electro-optical liq. crystal (LC) displays, as chiral dopants for

nematic or cholesteric LC compns., and as chiral dopants for the  
prodn. of coloured, reflecting, cholesteric LC layers (claimed).

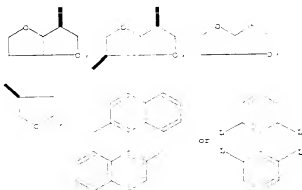
## ADVANTAGE

Provides chiral dopant with a high to colour power, capable of  
stable incorporation in cholesteric phases over a wide range of concns.,  
without diffusing or crystallising out.

## PREFERRED COMPOUNDS

n = 2, M = a gp. of formula  $-T-Y^3-T-$  (Ia), in which T =  
divalent iso- or netero-cycloaliphatic gp. or iso- or netero-aromatic  
gp., Y<sup>3</sup> = a bridging gp. as for Y<sup>1</sup>, or -CH<sub>2</sub>O-, -OCH<sub>2</sub>-, CH=N- or -  
N=CH-, r = 0 or 1, pref. 0 or 1, T and Y<sup>3</sup> can be the same or different  
when r = more than 0 or more than 1, X = one of the following gps.,  
as shown,

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in which L = 1-4C alkyl or alkoxy, halogen, -COOR, -OCOR, -  
CONHR or -NHCOR. At least one of the gps. Z, Y<sup>1</sup>, Y<sup>2</sup>, A, M, R  
and L are each identical. Pref.: gps. Z, Y<sup>1</sup>, Y<sup>2</sup>, A, M, R

## PREPARATION

Cpds. (I) are prepd. by known methods (eg. as described in DE-A  
2917196) from chiral starting materials of formula X(OH)<sub>n</sub>, which are  
generally commercially available cpds. Gps. Z, A, M and X are pref.  
coupled by condensative reactions with the formation of bridging gps.  
(Y), e.g. by reacting a mesogenic carboxylate with a chiral OH cpd. to  
form an ester, or two OH cpds. to form an ether, etc.

## EXAMPLE

A mixt. of 4.5 g 4-isocyanatobenzoyl chloride, 3.5 g 2,5-bis-  
trimethylsilyloxy-1,4,3,6-dianhydrosorbitol, 20 mg 4-  
dimethylaminopyridine and 10 ml 1,2-dichlorobenzene was heated at  
165°C for 11 hrs. with removal of Me<sub>3</sub>SiCl by distn. at 500 mbar. The  
mixt. was then worked up by cooling, filtration of the pptd. solid and  
recrystallisation, to give 2,5-bis-(4'-iso-cyanatobenzoyl)-1,4,3,6-  
dianhydrosorbitol (I) in 85% yield.  
/13pp1712Dwg No (3/0)

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